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ABSTRACT

Work redesign for improving satisfaction or productivity depends partially on employee attributes because employees respond differently to work conditions. The Hackman-Oldham theory distinguishes "job" from employee responses to job. A job's motivating potential is thus linked to five core characteristics that affect three psychological states essential to internal work motivation and positive work--outcomes--an idea valuable to educators concerned with human resources management. This paper examines the applicability of the theory to school teaching, an occupation very different from those originally considered, and hence requiring the revision of the Hackman-Oldham instruments as outlined in section B. The section also analyzes the scales for measuring job characteristics. A third section traces results of instrument administrations to 198 Oregon teachers, considers distributions and inter-item reliabilities, and discusses sensitivity of revised measures, subjectivity of measures, and relationships with organizational commitment. Job diagnostic survey, job rating form, and Bogen-Charters Inventory appendixes follow the report's conclusions. (KS)

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FEASIBILITY STUDIES OF TEACHER CORE JOB CHARACTERISTICS

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A. INTRODUCTION

One of the important theoretical developments in recent management literature has been the synthesis and extension by Richard Hackman and his colleagues of many task and job design studies into a broad theory of work redesign (Hackman & Lawler, 1971; Hackman & Oldham, 1975, 1976, 1980). This theory of work redesign has been among the most popular approaches to job research in the past decade (Roberts & Glick, 1981).

Increasing productivity in modern industrial society, in their view, depends on improving the fit between work and worker. "As work organizations have continued to get bigger, more mechanistic, more controlling of individual behavior, and more task specialized," Hackman and Oldham write, "the people who work in those organizations have become more highly educated, more desirous of 'intrinsic work satisfactions,' and perhaps less willing to accept routine and monotonous work as their legitimate lot in life" (1980, p. 8). It is incumbent on managers to alter the conditions of work--in particular, to enhance the "motivating potential" of jobs--in order to solve the contemporary problem of absenteeism, turnover, alienation from work, and declining productivity.

Redesigning jobs to increase their motivating potential, however, is not assured of success, in the authors' view, since employees respond differently to conditions of work. The link between job enrichment and satisfaction or productivity depends in part on attributes of the job

incumbent him- or herself. Thus, job redesign is a matter of fitting work to the worker, of providing opportunities for intrinsically satisfying work to those who choose to seize them and to avoid distressing those for whom job enrichment would be unduly taxing.

The Hackman-Oldham Theory

Specific terms of the Hackman-Oldham theory are outlined in Figure 1.

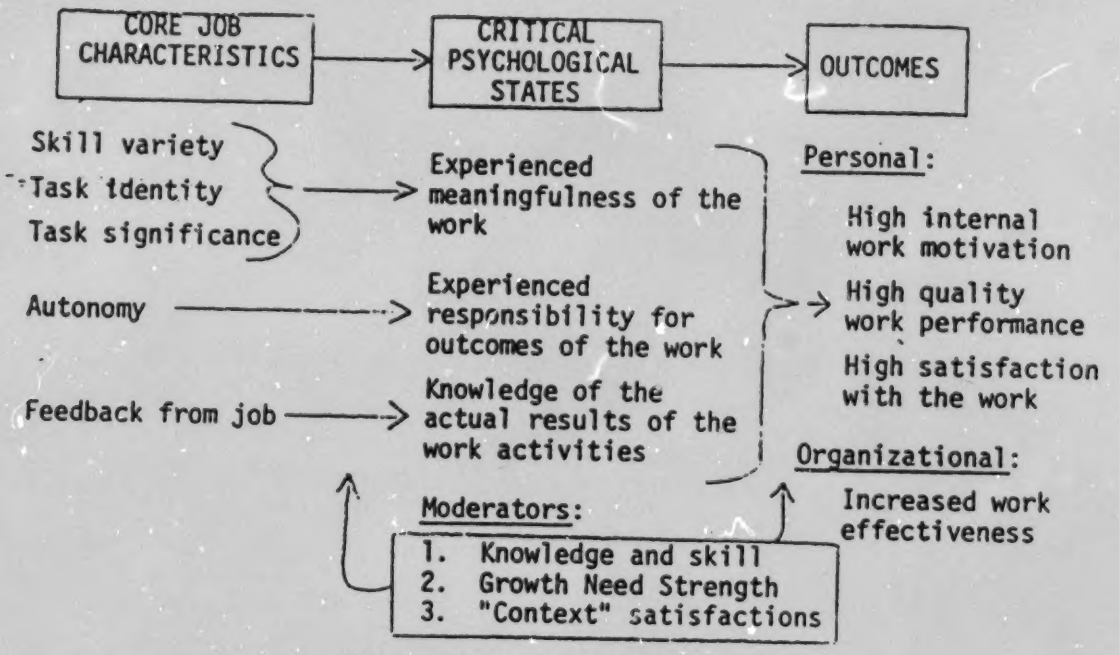


Figure 1. Job characteristics model of work motivation.

The authors distinguish analytically between "the job," conceived as an objective entity, and the responses of job incumbents to it. The latter are referred to as the "critical psychological states." Jobs, in this analytical

sense, can be characterized independently of the individuals who happen to be occupying them at any given time. While an employee's phenomenological response to a job is presumed to be closely related to the objective properties, it is not fully determined by those properties. The relationship is conditional. Psychological states are internal to each person and are not directly manipulable; job properties are theorized to be manipulable and, therefore, can be the target of managerial efforts in job redesign.

Hackman and Oldham singled out five properties of jobs--the "core job characteristics"--of especial significance for employee motivation. Together they represent the job's motivating potential. These are referred to as Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback from the Job. They bear on the three "critical psychological states" that Hackman and Oldham regard as central conditions of strong internal work motivation and positive work outcomes. A job will be "meaningful" to an employee to the extent it requires a variety of skills, involves the completion of a whole and identifiable piece of work, and has significance for the lives of other people; it will foster feelings of "personal responsibility" in the degree it provides the employee autonomy in selecting the methods for carrying out the work; and it furnishes the employee "knowledge" on which to judge the effects of his or her efforts if it is arranged to allow such feedback. Thus, the motivating potential of a job, as elaborated by the five core characteristics, are said to affect the three psychological states, which, in turn, are essential ingredients of the employee's internal work motivation and other positive work outcomes.

As noted above, alterations in core job characteristics have differing effects on the psychological responses of individuals and on work outcomes, depending on certain other attibutes of the individual or the work setting. Prominent among these moderating conditions is the individual's "growth need strength," conceived in terms of Maslow's (1976) higher level needs hierarchy. Variation in the motivating potential of jobs is expected to be positively associated with responses of individuals at the higher levels of growth need strength but to be unrelated, or perhaps even negatively related, to responses of employees at the lower levels. The authors mention, but do not develop, several additional contingencies under which the direct relationships betweeen job characteristics and psychological states would not be expected to hold.

The immediate outcomes of job redesign envisaged by Hackman and Oldham are phrased primarily in terms of a difference in levels of internal motivation to perform, general job satisfaction, and work "effectiveness," meaning principally the quality of goods and services produced, not necessarily their mere quantity. Less clear, or at least less immediate, are the consequences for absenteeism and turnover, according to the authors.

The Hackman-Oldham theory has the virtue of giving specificity to the components of the job-worker-performance interdependencies, at least within a motivational framework. It provides the manager with conceptual tools for analyzing situations confronting them. It has the special appeal of characterizing jobs in terms of identifiable dimensions open to managerial manipulation. Their formulation stresses the importance of close diagnosis

of employee attributes, as well as the conditions under which the work is carried out. Hackman and Oldham suggest that the administrative ability to redesign work can extend from each individual to entire work groups or organization task complexes, based on the "best fit" of individuals to multiple task components.

Instrumentation

Appeal of the approach certainly has been enhanced by the mass-administered questionnaire developed by Hackman and his associates over a number of years, the Job Diagnostic Survey (or JDS). Publication of this instrument operationalizing the theoretical constructs of the formulation not only furnished managers with an inexpensive diagnostic tool but stimulated a remarkable number of investigations related to the theory.

The JDS, administered to employees of work organizations, consists of eight sections. The first two sections contains questions asking job holders to rate their jobs on the five core characteristics, plus two others not formally part of the theory--Feedback From Agents and Dealing With Others. Each characteristic is measured by a three-item scale, one item employing the format of a graphic rating scale (in Section 1), and two items (in Section 2) asking respondents to indicate the accuracy with which a statement describes the job. Scoring procedures provide values ranging from 1.0 to 7.0 for each dimension. An overall Motivating Potential Score (MPS) is obtained by an arithmetic combination of scores of the five core characteristics. (These sections of the JDS are reproduced in Appendix A and described fully in the following part of the report.) Thus, 21 items capture seven dimensions

characterizing "the job." The remainder of the JDS consists of 57 items designed to measure the critical psychological states, job satisfaction, growth need strength, and several supplementary personal attributes of the respondent. Scoring keys accompany the JDS to facilitate processing of large numbers of questionnaire returns.

Hackman and Oldham also developed a Job Rating Form (JRF) parallelling the first part of the JDS, allowing persons other than job incumbents describe core characteristics of a job and, thereby, providing a methodologically independent means of measuring job properties. (See Appendix B.)

The Problem

The systematic, theory-based approach of Hackman and Oldham holds a certain attraction to educators, particularly those concerned with human resources management. Schools and colleges are labor-intensive enterprises constantly seeking more effective, more humane ways of using the instructional staffs available to them, and the analytical framework may be equally as promising in education as in business and industry. Expositions of the theory by one of us (Bogen) has generated considerable pedagogical excitement in seminars for educational managers, and our initial, informal uses of the JDS for describing the jobs of high-school and university instructors has produced thought-provoking data. Both the language and the methodological tools for characterizing the work of teaching have been in short supply, especially from the perspective of human resource management.

Nevertheless, we felt it important to examine carefully the

applicability of the analytical framework and the accompanying measurement procedures before promoting either as valuable aids to school improvement efforts. If we could be assured that the job dimensions of teaching could be formulated appropriately and measured accurately following the leads of Hackman and his associates, the door would be open for investigations into larger elements of the Hackman-Oldham model and its diagnostic utility in educational systems.

We chose to concentrate on the five (or seven) core job characteristics of Hackman and Oldham--their conceptualization and measurement--because of their pivotal role in job redesign and human resource management. We also limited our attention to teaching jobs at the elementary and secondary levels. Three main issues guided our investigation into core characteristics of teaching jobs.

Applicability to School Teaching

Are the concepts and measures of job characteristics relevant to teaching? The original interests of Hackman and his colleagues were with business and industrial settings, although a number of investigators subsequently have applied the measures to public service institutions (e.g., Baird, 1976; Brief and Mowday & Aldag, 1976; O'Reilly, Parlette, & Bloom, 1980; VanMaanen & Katz, 1974). Nonetheless, they couched the issues their theory addressed in terms of the relief of worker alienation and boredom found in simple, repetitious work in settings with a minute division of labor and close supervisory control, an imagery reflected in the concepts used to characterize job dimensions.

School teaching would not seem to suit the image well. Analyses of the teaching job, going back as far as Waller (1932), have regularly emphasized the ambiguous goals, uncertain technology, and loose coupling of the educational institution (Bidwell, 1965; March, 1976, 1978; Weick, 1976). Unlike many enterprises, its product is not a tangible object; and unlike the work even in many service organizations, teaching does not entail the performance of discrete tasks in a particular order, each with distinguishable marks of accomplishment and an identifiable contribution to some "whole." Except from the grossest perspective, the workflow is barely discernible, the division of labor primitive, and specialization minimal (Charters, 1964, 1970). Educational reformers of the late 1960's complained that teaching requires too much "skill variety," not too little--the demand on teachers for "omnicompetence"--and targeted the reforms of team teaching and differentiated staffing to its rectification. A dominant feature of the teaching occupation, according to Lortie's careful analyses (1965, 1969, 1973, 1975), is the extreme autonomy and disconnection from colleagues (and supervisors) that the work involves. Problems may lie in the overabundance of autonomy of the teaching job rather than its lack.

Thus, our research team had reservations about the meaningfulness of the five core job characteristics of Hackman and Oldham for teaching. Do they apply to the kind of job performed by teachers or to a job which may be "over-enriched" rather than in need of enrichment?

Sensitivity to Variations within Teaching

Can the concepts and measures differentiate between teaching jobs? Are the scales sufficiently sensitive to be used in schools for diagnostic purposes? Applications of the JDS have indicated that the instrument can discriminate between widely differing jobs (e.g., between managers and clerks, assembly line workers and accountants, construction workers and sales personnel), given fairly large samples, but the question remains as to whether the measures are suitable for discriminating between the far narrower band of jobs within the teaching occupation.

The problem can be vivified by referring to Figure 2, showing the profiles for two disparate types of job. The data are from a report of norms for the JDS, based on some 6930 employees working on 876 jobs of a highly heterogeneous character in 56 governmental, service, and productive organizations across the United States (Oldham, Hackman, & Stepina, 1978). Of all the data they present, by far the greatest disparity in JDS scores is between upper- or middle-level managers (N = 56 jobs) and the rank-and-file workers in the offices and shops of the organizations (N = 500 jobs), and it is their profiles we depict. Clearly, differences between teaching jobs will not be as great as these extremes. Is the JDS capable of capturing finer nuances?

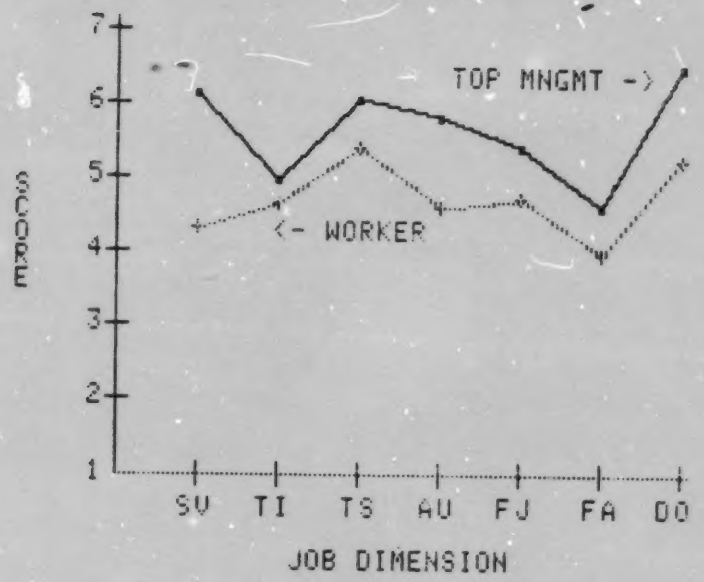


Figure 2. Job dimension profiles for top management and office or shop workers: Hackman data.

Added perspective on Figure 2 is furnished by taking into account the measurement error associated with the JDS scales. In an earlier report of norms for the JDS, Hackman and colleagues published an analysis of variance permitting estimations to be made of inter-rater reliabilities and measurement error (Hackman & Oldham, 1974, Table 4). Their data covered 50 jobs with 5 or more ratings, for a total of 613 employee-raters. Table 1 reproduces their results for each job dimension--the mean for the 50 jobs, the mean squares between jobs, and the mean squares for ratings within the same job. The next three columns give our calculations of the components of variance for job and residual (rater + error), and the coefficient of

inter-rater reliability. Although not immediately germaine, the last column gives the inter-item reliabilities reported by Hackman and Oldham in their Table 2.

Table 1. Inter-rater Reliability of Incumbent Ratings of JDS Job Dimensions: Estimated from Hackman and Oldham Data

Job Dimension	Mean	Mean Squares Between	Mean Squares Within	Estimated Variance Component Job	Estimated Variance Component Resid.	Reliability Inter-Rater	Reliability Inter-Item
Skill Variety	4.47	17.70	1.54	1.32	1.54	.92	.71
Task Identity	4.87	5.90	1.71	.34	1.71	.71	.59
Task Significance	5.54	3.22	1.55	.14	1.55	.52	.66
Autonomy	4.75	7.92	1.55	.52	1.55	.80	.66
Feedback from Job	4.96	4.41	1.76	.22	1.76	.60	.71
Feedback from Agents	3.87	6.82	2.28	.37	2.28	.67	.78
Dealing with Others	5.27	6.70	1.35	.44	1.35	.80	.59

Note: Means and mean squares from Hackman and Oldham (1974), Table 4; inter-item reliabilities from their Table 2.

Based on 50 jobs, 613 respondents, 12.26 raters per job.

The measurement error turns out to be quite substantial in most of the JDS scales, certainly enough to discourage their use for diagnostic purposes unless the number of raters of a given job is fairly large. Except for Skill Variety and, perhaps, Autonomy and Dealing with Others, the coefficients of inter-rater reliability indicate that raters do not agree much on the characteristics of their respective jobs. The same point can be observed in the magnitudes of the "residual" components of variance in the fifth column of the table.

The implication of rater disagreement is conveyed concretely in terms

of the number of teacher-raters that would be required to find a dependable difference ($p < .05$) between two teaching jobs. For two jobs varying as widely as those between top management and clerical or blue-collar workers depicted in Figure 2, the numbers necessary to overcome measurement error are not unduly large, at least for some of the job dimensions. Our calculations give these numbers:

Dimension	N needed per job
SV	4
TI	68
TS	14
AU	6
FJ	12
FA	20
DO	6

It is conceivably possible for a manager to obtain sufficient responses from teachers in a school district if "the teaching job" were defined very broadly, such as "elementary" vs. "secondary" teaching or "teaching in School A" vs. "teaching in School B."

As job-rating differences become smaller, the number of requisite raters increases disproportionately. For instance, a difference just half as extreme as the one depicted would require 14 and 278 teacher-raters for Skill Variety and Task Identity, respectively. The numbers quickly exceed the available staff sizes for many school district positions, to say nothing of jobs within school buildings. While researchers may be able to cope with the error problem by sampling jobs over a number of districts, that is little solace to the manager who is confined to his or her particular district or building.

The computations in Table 1 point to other problems in the JDS measures. A scan down the column for the variance component associated with "job" indicates that, except for Skill Variety, the supposedly heterogeneous jobs are pretty much alike. According to the ratings, they vary little on the 6-point scale (mostly over the upper half of the scale, as suggested by their means). In the case of Feedback from the Job, for instance, two-thirds of the jobs fall between 4.49 and 5.43. The band is even narrower for Task Significance (5.40 to 5.68).

The inter-item reliabilities in the last column add a further pessimistic note. The reliabilities are startlingly low for scales based on the same questions asked in only slightly different ways. As Hackman and colleagues consistently point out, the JDS is not a clinical device; it lacks the precision necessary for diagnosing jobs of single individuals.

Although most of the preceding calculations were made after the beginning of our study, the investigating team questioned the sensitivity of the JDS from the beginning and took it as an issue for study.

Subjectivity of the Measures

Are incumbent reports adequate measures of job characteristics? An important element of the Hackman and Oldham formulation is the separation of jobs as objective entities from jobs as experienced by the job holders, i.e., "core characteristics" as distinct from "critical psychological states," but do such self-reports afford objective descriptions of the job, or are they merely another reflection of the individual's psychological response to the job? If the measures of the job dimensions are importantly imbued with

respondents' own affective states, spurious relationships would be generated between the supposedly independent constructs and the utility of the measures for directing job redesign would be compromised.

Since most of the management research has relied on incumbent descriptions, the existing evidence is relatively sparse regarding the perceptual biases inherent in the method. Aldag, Barr, and Brief (1981) summarize the few studies, mostly by Hackman and associates, that examine the agreement between incumbents and other job raters (supervisors, researchers). In general, the "convergent validity" (the correlation between incumbent and other raters on the separate scales) tend to be quite low, in the neighborhood of .50 to .60. Especially problemmatic are the scales for Feedback from Agents, where correlations are essentially zero in some reports (e.g., Hackman & Oldham, 1974, Table 2) and Task Significance (correlations of .35). The values are not markedly higher than correlations between scale pairs within a rater group ("discriminant validity"), suggesting that a common theme runs through the scales. Roberts and Glick (1981) directly raise the issue of subjectivity in their review. They point out that most of the research has been based on correlations of responses of individual job holders (29 of the 37 studies they reviewed in detail), and they assemble evidence indicating that the incumbent ratings "reflect incumbents' task perceptions and only indirectly measure task characteristics" (p. 210).

If job ratings are just another way of asking individual employees how they feel about various features of their jobs, then the Hackman-Oldham formulation loses its distinctiveness. The question is an open one.

Overview of Report

To examine the three issues, the research team, besides reviewing the technical literature on job description, revised the Hackman-Oldham instruments (the first part of the JDS and the JRF) and administered them to carefully chosen samples of Oregon public school personnel. Part B, following, reports our effort in instrument revision. Revision was more than a simple translation of terms into language suitable to school teaching. We were obliged to confront conceptual questions regarding the meaning of "job" in an occupation with as little differentiation as in teaching and regarding the way teaching jobs might conceivably vary along the seven dimensions as defined by Hackman and Oldham. In short, the revision process brought us face to face with issues of both applicability and sensitivity.

Part C reports results of the questionnaire administrations. The first subsection gives inter-item reliabilities and other statistical properties of self-ratings by 198 classroom teachers. The second subsection focuses directly on the sensitivity of job descriptions. In particular, we tried to imagine sets of public school teaching jobs that one would expect to differ the most extremely on the five core job characteristics ("maximally different jobs") and then to assess the success of the instrument in discriminating between them.

Subjectivity of incumbent ratings, the topic of the third subsection, was studied by comparing teacher self-ratings of the job with ratings made by a supervisor, colleague, or other observer familiar with the job. Our analysis followed the multitrait-multimethod approach of Campbell and Fiske

(1959), considering job dimensions as traits and raters as methods. We also estimated components of variance in a manner proposed by Cronbach, et al. (1972), parallelling the procedures originally proposed by Stanley (1961) and extended by Kavanagh, MacKinney, and Wolins (1971), for determining sources of rater error.

A fourth subsection reports correlations between the job dimensions (including the Motivating Potential Score) and an avowedly subjective "outcome variable" relevant to the motivationally-oriented theory of Hackman and Oldham as well as to school settings, viz, commitment to the organization (Mowday, Steers, & Porter 1979). Of especial interest in the analysis was the manner in which the several job characteristics combined to affect commitment of teaching personnel. We suspected that certain of the characteristics did not tap dimensions important in teaching.

B. INSTRUMENT REVISION

The task of instrument revision, as we have mentioned, entailed a mix of conceptual and mechanical considerations. The strictly mechanical matters, such as assuring that the wording of the JDS and JRF were precisely parallel, could be resolved readily. More complicated were problems associated with the meaning of key terms in the Hackman and Oldham vocabulary. Since items in the instrument originally had been written for work involving inert objects, discrete tasks, and tangible products, the translation into terms relevant to teaching posed deeper questions. What did the authors intend by such terms as "task identity" or "feedback from the job," and could they be construed to apply to teaching at all, where human beings are the objects of work, tasks are anything but discrete, and the product is essentially invisible? Especially problematic was the meaning of "job," the pivotal concept of the theory. If teachers or others are asked to describe the characteristics of a job, it would seem essential that they (and we) be reasonably clear on what they are asked to rate. Oddly, Hackman and Oldham nowhere defined "job" in their theory, nor do they discuss operationally the basis for deciding that two employees have different jobs rather than the same one.

Our procedure for revising the instrument was an interative one extending over a period of nearly six months--an iteration between conceptual formulation and empirical observations. Empirically, we had teachers and

others with recent teaching experience respond to the JDS in one-on-one interaction with a member of the research team, during which they were questioned about their interpretation of the questions and why they had given the ratings they had. We also sought the views of practicing administrators and others familiar with teaching on how teaching jobs might differ on the several dimensions, and we administered trial forms of the JDS in settings where responses could be discussed by groups.

Meanwhile, the research team engaged in intensive, word-by-word analysis of the instrument, illuminated by, as well as directing, the foregoing empirical observations. We supplemented the items of three scales by writing additional questions. Throughout, we tried to remain as faithful as possible to conceptions of the original authors. Our general intentions were to gain an understanding of the applicability of the Hackman-Oldham dimensions of school teaching, to formulate provisionally types of teaching job the dimensions might differentiate between, and to produce an instrument consistent in terminology and understandable by school people.

First we turn to a brief consideration of "teaching jobs" and then report our revisions of questions relating to the seven job characteristics.

Teaching Jobs

If teaching jobs are to be selected for diagnosis and redesign, it is necessary to be able to denote the different jobs existing within a school or school system. It turns out that the issue of where one job ends and another begins is rarely addressed. Hackman and Oldham do not specify the meaning of "job," using it loosely and more or less interchangeably with such terms as

"work" and "task." Nor have other investigators concerned themselves with the issue, perhaps because jobs are likely to be well differentiated within industrial and commercial settings or because most investigations have focused on analyzing individual employee responses to different parts of the JDS.

The best clue we found as to how Hackman and Oldham actually distinguished jobs came from the critique of Roberts and Glick (1981, p. 197). They write that the Hackman and Oldham model is "plagued with problems apparent in the pioneering work of Turner and Lawrence and of Blood and Hulin," and continue:

> Existing company documents defining job classifications were accepted as valid and reliable. . . Individuals in the same job classifications were assumed to perform the same objective tasks.

Examination of the reference to an early work by Hackman and Lawler (1971), which they cite, suggests that a "job" is conceived as a localized phenomenon. Apparently, it points to a set of employees at a particular installation or facility doing work that is identical from the perspective of local management. Among Hackman and Oldham's (1974, 1980) illustrations of different jobs are: a check-processing job in the "back room" of a bank, the laboratory technician's job in an R & D department of an industrial plant, a data coding job in the headquarters office of a large organization, assemblers of grain driers in an Iowa plant, keypunch operators in the Treadfree Manufacturing Company.

While it is not difficult to imagine other, unlike jobs in the preceding locations, complications arise when attempting to apply the scheme

to teaching jobs in educational organizations. Teaching jobs can be classified grossly, of course, by level--elementary, secondary, tertiary, and so on--but, except in unified public school districts, the levels are embedded in separate organizations and do not permit differentiation between jobs within the organization. A finer classification customarily is used to distinguish teaching jobs at the secondary level, by subject area. (Departments, in high schools large enough to warrant them, generally duplicate the subject-matter classification.) Elementary teaching, however, remains largely undifferentiated. Specific grade level of teaching is not an especially fruitful basis of classification; teachers are regarded as, and in fact are, interchangeable across grade levels, and the work of teaching does not differ appreciably from one grade to another, at least from the perspective of core job characteristics.

The problem of numbers confounds the classification of teaching jobs. Assume optimistically that 10 job incumbents are sufficient to characterize dependably the dimensions of a job (see p. 12, above). In a unified public school district just large enough to support a single secondary school, a district consisting of, say, 45 high school teachers and 60 elementary teachers distributed in four schools, it is unlikely that 10 staff members could be found in a given job if jobs were classified any finer than by gross level (elementary vs. secondary) or, perhaps, by school. The difficulty does not become appreciably less with an increase in school system size, since the number of staff members per school does not ordinarily increase proportionally. Both elementary and secondary schools tend to disperse

geographically, each remaining more or less constant in staff size. It would be the exceptional case in which there were as many as 10 social studies and 10 science teachers, for instance, in a single high school. Almost never would one find 10 art or home economics or driver education teachers at the same facility. Even pooling teaching jobs across high schools in a large district, the number of staff members in the "same job" rarely would reach 10 in most of the categories of the finer classification system.

The numbers problem seriously constrains the utility of the JDS for diagnostic purposes, assuming that diagnosis is to be carried out by managers at the school district or, especially, the school level. It does not preclude its use by researchers and others whose interests transcend school system boundaries. They could readily obtain a sample of several hundred drivers education or industrial arts teachers across the nation, even though they may be rare in a given district. As a case in point, the present research team was obliged to ignore school and even school district boundaries in order to collect sufficient cases to test the sensitivity of the JDS in detecting differences between "teaching jobs." Nevertheless, our reflections on the meaning of "job" in the Hackman-Oldham formulation has led us to believe that it is inapplicable as a diagnostic tool in job redesign from the perspective of local educational managers.

Scales for Measuring Job Characteristics

Section I of the JDS consisted of 7-point graphic rating scales according to which the job incumbent could describe the job, one scale for each of seven job characteristics. In addition to the lead-in question for a

scale, brief paragraphs were included to portray the meaning of the end points (and middle) of the continuum. Section II consisted of 14 statements (two for each job dimension) to which respondents were asked to respond in terms of their accuracy or inaccuracy in describing the job. Response alternatives were:

Very Inaccurate
Mostly Inaccurate
Slightly Inaccurate
Uncertain
Slightly Accurate
Mostly Accurate
Very Accurate

One of the two statements for each dimension was reversed in meaning (and, of course, scoring). Hackman and Oldham's JRF parallelled this format.

We report our revision efforts for the seven job characteristics, beginning with the three said to lead to "experienced meaningfulness of work" (Task Identity, Skill Variety, and Task Significance), followed by Autonomy and Feedback from the Job, and finally the supplementary dimensions, Feedback from Agents and Dealing with Others. While the supplementary characteristics do not figure as "core" features of work in the Hackman-Oldham theory, we thought they might be especially relevant to the work of teaching.

In the following, each of the seven is described 1) as defined by Hackman and Oldham, 2) as operationalized by questions in the JDS, and 3) as modified our extended by the research team through interviews, discussions, and preliminary field tests. (Reference to Hackman and Oldham is their book, Work Redesign, 1980.) The principal considerations in the revisions were language clarification, redirection to maximize sensitivity to variations

between teaching jobs, and inclusion of wording to cast questions in a form relevant to teaching. The reader can find our revision of the form in Appendix C; we will only report the more substantial revisions in the text.

Task Identity

Hackman and Oldham define Task Identity as follows:

> The degree to which a job requires completion of a "whole" and identifiable piece of work, that is, doing a job from beginning to end with a visible outcome (p. 78).

What is a "whole piece of work" for a teacher? Is it the "whole child?" Is it completion of the September-to-June school year? Is it teaching a subject, like chemistry or math or English? Is the "whole piece of work" graduation of each student from school? If so, is work different for different teachers at different grade levels and for different subjects? What is a "visible outcome" in education for teachers in terms of a "whole piece of work?--a child who has learned a specific thing, a lesson delivered, or a year completed, or all three?

We turned first to the descriptive examples in Work Redesign for guidance about answers to these crucial questions. Hackman and Oldham use two examples to illustrate what they mean by Task Identity: They compare a social worker who is responsible for all the needs of a client to a social worker who works only on income assistance problems. They then contrast a person who assembles a complete toaster to another person who solders electrical connections on toaster after toaster but never sees the finished toaster. The authors contend that even if the skill levels required are the

same for the social workers or for the toaster-builders, the person who works with all the needs of the client (and the person who assembles the complete toaster) will report higher Task Identity because they see the "whole piece of work." The terms used in the text discussion are "intact task," "complete unit of service," and "entire product," as opposed to a "small part of the job."

We examined the items included in the JDS/JRF that operationalize this job characteristic. We show the three questions (JDS words are noted in parentheses where differences exist between the JDS and JRF; underlining is Hackman and Oldham's).

(Section I)

To what extent does the job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

1——2——3——4——5——6——7

(My) The job is only a tiny part of the overall piece of work; the results of (my) the person's activities cannot be seen in the final product or service.	(My) the job is a moderate-sized "chunk" of the overall piece of work; (my) the person's own contribution can be seen in the final outcome.	(My) The job involves doing the whole piece of work, from start to finish; the results of (my) the person's activities are easily seen in the final product or service.

(Section II)

The job is arranged so that (I) a person does not have the chance to do an entire piece of work from beginning to end.

The job provides (me) a person with the chance to completely finish (the pieces of work I begin) any work he or she starts.

Hackman and Oldham have added the words "complete" and "obvious beginning and end" to the descriptive terms used in their earlier text. These become very difficult to define when one moves from a discussion of producing toasters to a discussion on educating people. When is education or teaching "complete?" What is the "obvious beginning and end" of teaching and/or of a teachers job?

After considerable discussion and field testing, we decided to focus the definition of Task Identity on the degree of overall educational responsibility for a child, as the teacher having control over the child's exit skills, and/or as teacher responsibility for the student over time. In other words, a "whole piece of work" to a teacher could be defined by the teacher having responsibility for the students' whole education (even for a short period of time), for the teacher being solely responsible for teaching demonstrable skills in a specific subject, and/or by <u>extended</u> responsibility over time for some or all subjects. An elementary teacher in a self-contained classroom would have responsibility for the overall education of a group of students over one academic year. That teacher has the students for one year; that is a definable "chunk" of time. The high school chemistry teacher, on the other hand, may only have the students for one or two terms

and for only one subject. However, skills and knowledge are testable; the teacher can remediate for and demonstrate learning of exit skills; i.e., s/he can demonstrate the end result of the student's science education, even if the student has only been with the teacher for a brief time. Task Identity in this instance is through demonstrated skills in the subject area. Along the same line, a shop teacher works with demonstrable skills, and students can produce products which demonstrate their knowledge.

Another teaching situation that we thought might provide high Task Identity under this teaching-related definition is that of the special education resource room teacher. The teacher has overall responsibility for each student's progress in all subjects. Attained skills are documented through a required annual Individualized Education Plan (IEP). A resource room teacher may supervise a student's learning over a span of several years and therefore might have a greater view of the "overall piece of work." This relationship is mediated, however, by the involvement of classroom teachers, parents, specialists, etc., who assist in planning the IEP and educational program and, in the case of classroom teachers, who may also implement IEP requirements in the regular classroom with or without the direct involvement of the resource room teacher. The overall view of the student might be compromised by the fact that the special education teacher may not actually <u>teach</u> the student, but may serve more in the role of facilitator to other teachers. This threefold definition allowed several ways of looking at the possible "overall piece of work" for each teacher. Each aspect focuses on work attributable to a specific teacher. Each of the three possible foci

relate to the student and the student's academic program, further restricting possible interpretations of teaching that include a broader range of activities. In our early interviews, some respondents had defined "being a teacher" or the "teaching job" as a broad professional role that encompassed a lifelong commitment to many activities related to the profession but not necessarily falling within the 7:00 am - 4:00 pm school day. While we agreed with this broader view of "being a teacher" for the sake of maximum control over possible interpretations of what the "whole job" could mean, we attempted to use words that directed the respondent to a specific student/classroom focus.

We further hypothesized that teachers in areas with less definable "products," like social studies or literature, would report lower Task Identity and that teachers who work with students in large groups over short periods of time and do not see the end results of their teaching interventions would also report lower task identity. A job with low Task Identity is one with a small part of a larger job, whether defined as one piece of work without demonstrable end results, or defined as general/introductory subject matter where the possible results of teaching are not easily traceable as resulting from one teacher's efforts.

In the end, however, Task Identity remained an elusive concept when applied to work other than the production of tangible goods or the provision of short-term service. We left the Hackman-Oldham questions much as they were, with only slight modifications for purposes of clarity. (See Appendix C.)

Skill Variety

Hackman and Oldham formally define Skill Variety as follows:

> The degree to which a job requires a variety of different activities in carrying out the work, involving the use of a number of different skills and talents of the person (p. 78).

Several concepts of work are embedded in this definition: variety of activities, different tasks, number of skills, and number of talents. The explanatory paragraph which follows this definition in Work Design emphasizes that highly motivating work requires workers "to engage in activities that challenge or stretch their skills or abilities." Hackman and Oldham state that the more skills needed, the more meaningful the work is likely to be to the workers. They state that human beings are probably "wired in" for seeking ways to explore and manipulate their environments, thereby gaining an increased sense of efficacy. Content of activities, they contend, is probably less essential to experienced meaningfulness than is work that taps as many of the worker's skills and talents as possible. Hackman and Oldham give no examples of jobs with high or low Skill Variety.

There are several possible ways to define Skill Variety for teachers that could result in usable redesign data. We distinguished skills needed for teaching versus other skills which are often required for teachers in school settings (advising, coaching, community work, parent counseling, etc.). Even within this narrower context, Skill Variety can still be defined as the number of teaching techniques required, or the complexity of different techniques, or the Skill Variety intrinsic in the subject(s) being taught. One teacher might teach the same subject all day, using many teaching

techniques. Another might teach many subjects in the same day, but use the same techniques over and over. A teacher might perform a variety of tasks in a day, but most of them may be simple and repetitious in nature and not tap different skills or talents on the part of the teacher.

We turned to the three JDS/JRF questions for guidance.

(Section I)

How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1——2——3——4——5——6——7

Very little, the job requires me to do the same routine things over and over again.	Moderate variety.	Very much; the job requires me to do many different things, using a number of different skills and talents.

(Section II)

The job requires me to use a number of complex or high-level skills.

The job is quite simple and repetitive.

Instead of simplifying our definitional problems, Hackman and Oldham introduced additional concepts of 1) required versus allowed work, 2) "at work" work versus overall professional activities, and 3) routine/repetitive work equated to "simple and boring" work. For teachers in teaching jobs, all of these aspects of Skill Variety are not as interchangeable as they might be for a more clearly defined, repetitive assembly job.

After discussion and initial field testing, we expanded the number of items operationalizing Skill Variety to include several aspects. These are 1) allowed use of a variety of skills and talents, 2) use of a number of

complex skills, 3) repetitive activities, and 4) allowed opportunities to do different things. Teaching can be made up of a variety of simple and complex tasks that require simple and sophisticated skills and talents. While many of the tasks completed by a teacher in a typical teaching week are mandated (and/or may be simple, and/or also repetitive), there is also considerable choice available to the individual teacher in how teaching tasks themselves are completed.

Low Skill Variety was therefore defined as simple subject matter, simple tasks, and/or basic skills. A job with high Skill Variety was defined as requiring use of a variety of skills, use of complex skills, and/or provision of opportunities to do different things.

We redrafted the Hackman-Oldham questions to make them more direct. Also we added three statements to Section II to cover various meanings of the term. The full set of redrafted statements are given below.

> The job requires a person to use a number of complex or sophisticated skills.
>
> The job is quite simple and can be done adequately using basic skills. (Reverse Score)
>
> Activities associated with the job are repetitious. (Reverse Score)
>
> The job provides one with opportunities to do a number of different things.
>
> The person doing the job performs much the same task throughout the typical workday. (Reverse Score)

To summarize, Skill Variety was operationalized as variety, complexity and opportunity to perform different tasks in high Skill Variety

and simple subject matter, simple teaching tasks and/or only basic skills needed in low Skill Variety.

Task Significance

Hackman and Oldham define Task Significance as follows:

> The degree to which the job has a substantial impact on the lives of other people, whether those people are in the immediate organization or in the world at large (p. 79).

Our greatest concern with this definition as applied to teachers and teaching jobs was in how to distinguish differences in a profession which by definition is one of seminal impact on citizen's lives. We were concerned about how to discriminate between the broad significance of teaching and education and the specific perceived role of each teaching job for each teacher.

Hackman and Oldham further define Task Significance in Work Redesign as being any aspect of work that contributes toward "substantial impact on the physical or psychological well-being of other people." The example they use is of employees who tighten nuts on aircraft engines as opposed to employees who tighten nuts on decorative mirrors. Hackman and Oldham make their discrimination on the basis of lives being at stake, in one instance, and not being at stake in the other. They state:

> When we know that what we do at work will affect someone else's happiness, health, or safety, we care about that work more than if the work is largely irelevant to the lives and well-being of other people.

Using this broad definition, we suspected that all teachers would report high Task Significance, surpassed only by critical care health workers,

physicians, and others who are involved in direct life-and-death decisions.

We turned to the JDS/JRF questions for further understanding.

(Section I)

In general, how <u>significant</u> <u>or</u> <u>important</u>, is (your) the job? That is, are the results of (your) the person's work likely to significantly affect the lives or well-being of other people?

1——2——3——4——5——6——7

Not (very) at all significant; the outcomes of (my) the work are <u>not</u> likely to (have important effects on other people) affect anyone in any important way.

Moderately significant.

Highly significant; the outcomes of (my) the work can affect other people in very important ways.

(Section II)

This job is one where a lot of other people can be affected by how well the job gets done.

The job itself is <u>not</u> very significant or important in the broader scheme of things.

Buried at the low end of the Likert scale is the key to Task Significance for individual teachers and the key to providing possible manipulable events in a particular teacher's job. The significance of a particular teaching job is not that it is done, but that it is done well or poorly. By focusing on quality of teaching, one can conceive of "significant effects" on students in line with Hackman and Oldham's broad definition of Task Significance. One teacher can have a positive or negative influence on a student by either very good or very bad teaching. Reported low Task Significance could result when the particular teaching job is not seen to matter much in the broader scheme of education or when the subject matter

being imparted is perceived to be of less significance or value than other subjects. Teachers could also report high Task Significance when they offer unique courses in key subject areas and when students cannot get this information from other sources.

Jobs with low Task Significance would be jobs which involve non-essential subject matter, subject matter which is not clearly defined, and/or subject matter which is repeated other places by other teachers. Teaching jobs with high Task Significance would be jobs which involve required subject matter, particularly when taught by only one teacher and when content is not available from other sources. High Task Significance would also be found in jobs where the quality of teaching can have a significant positive or negative impact on the student. We also discussed the likelihood that teaching a key course for, say, college-bound science students, might result in reporting higher Task Significance because mastery of course content would be essential to future educational success. Operationalizing this variable would require separate questions for each college or occupational track, however, and was not pursued further.

We can best describe our alterations of the questions by showing the entire revamped scale.

(Section I)

How likely is it that the lives or well being of students would be affected if this job were done poorly.

1——2——3——4——5——6——7

Not very likely; the lives or well-being of students would not be significantly affected if this job were done poorly.	Moderately likely; the lives or well-being of students would be somewhat affected if this job were done poorly.	Highly likely; the lives or well-being of students would be significantly affected if this job were done poorly.

(Section II)

The impact on students would be minimal if this job were eliminated altogether. (Reverse Score)

This job is one in which people are significantly affected by how well the work gets done.

No one would be worse off if this job were not done at all. (Reverse Score)

To summarize, high Task Significance was operationalized as a teacher whose teacher required subject matter, is the only teacher teaching the subject matter and where the impact of learning or not learning the teacher's material can be great. Low Task Significance was operationalized as a teacher teaching nonessential or substantially undefined subject matter, or where the teaching is repeated in other classrooms and at other times.

Autonomy

Hackman and Oldham propose that the autonomy provided by a job increases feelings of personal responsibility for work. They define Autonomy as follows:

> The degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out (p. 79).

They further describe Autonomy as those factors which increase a person's view that work outcomes depend on one's own efforts rather than upon some one else or on a set of written procedures.

Autonomy is operationalized by the following questions from the JDS/JRF.

(Section I)

How much autonomy is there in (your work) the job? That is, to what extent does (your) the job permit (you) a person to decide (on your own) on his or her own how to go about doing the work?

1-----2-----3-----4-----5-----6-----7

Very little; the job gives (me) a person almost no personal "say" about how and when the work is done.	Moderate autonomy; many things are standardized and not under (my) the control of the person, but (I) he or she can make some decisions about the work.	Very much; the job gives (me) the person almost complete responsibility for deciding how and when the work is done.

(Section II)

The job gives (me) a person considerable opportunity for independence and freedom in how (I do) he or she does the work.

The job denies (me) a person any chance to use (my) his or her personal initiative or (judgment) discretion in carrying out the work.

"Job," "task" and "work" are not synonyms in education. Our early field test interview results documented this. A teacher's response to a question on Autonomy is seriously affected by whether that teacher decides to answer questions based on a view of a particular teaching task, on when and

how a subject is taught, or on whether the whole teaching job is defined as what occurs in the classroom with the door closed or what occurs in all professional activities. Hackman and Oldham's treatment of Autonomy is too simplistic for an education setting. We turned to Blauner's faceted definition of autonomy for guidance (Blauner, 1964). The worker's freedom puts him/herself in a proactive rather than reactive decision-making stance concerning work. Blauner defines autonomy as control over the pace of work, freedom from oppressive constraints upon choice, freedom of movement, and freedom to choose the techniques and control the quality of teaching work. We also gained help from Charters' (1976) conceptualization of "teacher sense of autonomy," which, in turn, was derived in part from Lortie's studies (1969, 1973). The expanded concept of Autonomy did not lead us to alter Hackman and Oldham's descripters on the graphic rating scale but we did add four statements to Part II of the instrument. They are given below.

> The job denies a person any chance to use his or her personal initiative or discretion in carrying out the work. (Reverse Score)
>
> The job gives a person considerable opportunity for independence and freedom in how he or she does the work.
>
> The person is left pretty much on his or her own to do the work.
>
> The job provides little opportunity for independent thought and action. (Reverse Score)
>
> The individual is free to carry out the work as he or she sees fit.
>
> The person in the position has limited control over the pace of work. (Reverse Score)

A teaching job with low Autonomy would be highly prescribed, including rules on how and when work is to be completed. There might also be

a heavy pace of work, with minimal opportunity for independent decisions. A teaching job with high Autonomy would allow independent decisions on how and when the work is completed and would maximize opportunities for independent thought and action.

Feedback from the Job

This core job characteristic is defined by Hackman and Oldham as follows:

> The degree to which carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of his or her performance (p. 80).

Hackman and Oldham attempt to distinguish feedback in work outcomes which are intrinsic to the job (and which can, therefore, be manipulated as part of job redesign) from feedback outside the job (not manipulable as part of a job redesign). Examples given in the Hackman and Oldham text are of a television repairman who can determine from turning on the set whether it works after repair, a sales representative who closes a deal and receives payment, and a physician who sees a patient get well as the result of treatment. The concept of Feedback from the Job is operationalized in the JDS/JRF as follows.

(Section I)

To what extent does doing the job itself provide (you) the person with information about (your) his or her work performance? That is, does the actual work itself provide clues about how well (how are) the person is doing - aside from any "feedback" co-workers or supervisors may provide.

1——2——3——4——5——6——7

Very little; the job itself is set up so (I) a person could work forever without finding out how well (I am) he or she is doing.

Moderately, sometimes doing the job provides "feedback" to (me) the person sometimes it does not.

Very much; the job is set up so that (I get) a person gets almost constant "feedback" as (I work) he or she works about how well (I am) he or she is doing.

(Section II)

Just doing the work required by the job provides many chances for (me) a person to figure out how well (I am) he or she is doing.

The job itself provides very few clues about whether or not (I am) the person is performing well. (Reverse Score)

We made no important changes in these questions. The only alteration was to refer to feedback regarding "one's performance" rather than "how well one is performing." (See Appendix C.)

Feedback from Agents

Hackman and Oldham imply that a second type of feedback, external to the job itself, can also contribute to the employee's increased understanding of the job. They define Feedback From Agents as follows:

> The degree to which the employee receives clear information about his or her performance from supervisors or from co-workers (p. 104).

These questions are included in the JDS/JRF to operationalize Feedback from Agents.

(Section I)

6. To what extent do managers or co-workers let (you) the person know how well (you are) he or she is doing on (your) the job?

1——2——3——4——5——6——7

Very little; people almost never let (me) the person know how well (I am) he or she is doing.	Moderately; sometimes people may give (me) the person "feedback"; other times they may not.	Very much; managers or co-workers provide (me) the person with almost constant "feedback" about how well (I am) he or she is doing.

(Section II)

Supervisors often let (me) the person know how well they think (I am) he or she is performing the job.

The supervisors and co-workers on this job almost never give (me) a person any "feedback" about how well (I am) he or she is doing in (my) the work. (Reverse Score)

With the exception of minor word modifications for consistency of terminology and use of education terms (e.g., "administrator" for "manager," etc.), the one concept we incorporated into Hackman and Oldham's definition is that of useful feedback as opposed to feedback of any sort. "How well" seems to be a more important question in informing teachers about their performance than does "how often." Quality of supervisory or peer feedback would seem to be an important variable in job redesign. The revisions are shown in Appendix C.

A job with low Feedback From Agents would have little feedback or poor feedback. The modified wording clearly allows for that feedback to be from any external source. Students were specifically not named since they

and their comments could be construed as being part of Feedback From The Job. A job with high Feedback From Agents would have frequent, high quality feedback from respected sources. No words are included in the questions which discriminate on the basis of formal or informal feedback structures.

Dealing with Others

Hackman and Oldham define this supplementary characteristics of jobs in the following manner:

> The degree to which the job requires employees to work closely with other people in carrying out the work activities (including dealings with other organization members and with external organizational "clients (p. 104).

They tap the dimension through the following JDS/JRF questions:

(Section I)

To what extent does (your) the job require (you) a person to work closely with other people (either "clients" or people in related jobs in (your own) the organization?

1———2———3———4———5———6———7

Very little; dealing with other people is not at all necessary in doing the job.	Moderately; some dealing with others is necessary.	Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

(Section II)

The job requires a lot of cooperative work with other people.

The job can be done adequately by a person working alone - without talking or checking with other people. (Reverse Score)

The only modification we made to these three questions was to the parenthetical statement in question one. After considerable discussion about

whether students are clients, tools leading to learning outcomes, or are the job outcome itself, we agreed that Hackman and Oldham's concept is clearly intended to include those who interact with the jobholder outside of the work itself. By excluding students, we remain true to the original formulation. See Appendix C for the slight alterations.

JDS/JRF Directions

We inspected the opening directions to respondents rather carefully, since they set the framework within which the questions are to be answered. These read,

> This part of the questionnaire data asks you to describe (your) the job listed above as objectively as you can. (Please do not use this part of the questionnaire to show how much you like or dislike your job). Questions about that will come later. Instead, try to make your description(s) as accurate and as objective as you possibly can (p. 277, 296).

We eliminated reference to other parts of the JDS and corrected inconsistent language between the two forms. In addition, we asked respondents to frame their answers in terms of the job at a site on a typical day. Given the range of non-instructional activities routinely engaged in by teachers (advising, coaching, etc.) and given the range of professional activities also possible (attending meetings, taking classes, reading journals, etc.), we attempted to delimit "job" to a common set of activities at the heart of teaching. We were especially interested, as were Hackman and Oldham, in emphasizing the necessity of describing the job as a job, not as they felt about it. Our alterations were not substantial and are shown in Appendix C, along with the entire instrument.

C. RESULTS OF THE INSTRUMENT ADMINISTRATIONS

We administered the revised forms of the JDS (or JRF) to a total of 244 Oregon school personnel, mostly in urban school districts of the Willamette Valley. Generally, the questionnaires were completed during staff meetings in the schools, although in some instances the research team elicited individual responses. Except where matching was essential, they were anonymous. Our sampling procedures were purposive rather than representative. Our principal interest was to obtain sufficient responses from teachers in "maximally different" kinds of teaching position to test the sensitivity of the scales or from teachers whose jobs were rated by others.

Distributions and Inter-item Reliabilities

Excluding the occasional substitute or student teacher or paraprofessional who wandered into the administration sessions, usable self-reports were obtained from 198 classroom teachers, at both the elementary and secondary levels. Table 2 shows various statistical properties of the seven job dimension scales measured by the revised instrument, analyzed across individual respondents. Reliability estimates are standardized Alpha coefficients paralleling those for the Hackman data given earlier (Table 1, above). We also show skewness values for the distributions of responses, calculated by the formula given in Hull and Nie (1981, p. 312).

Table 2. Statistical Properties of Revised Instrument: Individual Teacher Ratings of Own Job

Job Dimension	(# items)	Mean	S.D.	Skew	Inter-item Reliability
Skill Variety	(6)	5.4[illegible]	.755	-.28	.63
Task Identity	(3)	5.08	1.275	-.47	.70
Task Significance	(4)	6.13	.750	-1.39	.55
Autonomy	(7)	5.61	.9[illegible]	-1.03	.80
Feedback from Job	(3)	5.25	1.15[illegible]	-.57	.69
Feedback from Agents	(3)	4.53	1.3[illegible]6	-.21	.73
Dealing with Others	(3)	5.61	1.300	-1.02	.62

Note: N approximately 198.

The reliability estimates are of about the same magnitude as for the Hackman measures, ranging from .55 to .80. Again, they are much too low to permit use of the scales for clinical diagnosis of individual jobs.

The means and standard deviations indicate that respondents used even less of the 6-point scale than in the much more heterogeneous sample of Hackman and associates, and on some of the dimensions the means crowd the ceiling value of 7. The strong negative skews for Task Significance, Autonomy, and Dealing with Others point to the fact that most respondents used the highest values of the scales, while just a few rated their jobs with the lower values.

Figure 3 overlays teacher profiles on the means for top managers and rank-and-file office and shop workers shown earlier in Figure 2. The teacher means are virtually indistinguishable from those of top executives in the

productive organizations studied by Hackman and Oldham, except for Skill Variety and Dealing with Others. The latter means fall toward the ratings of blue- and white-collar jobs.

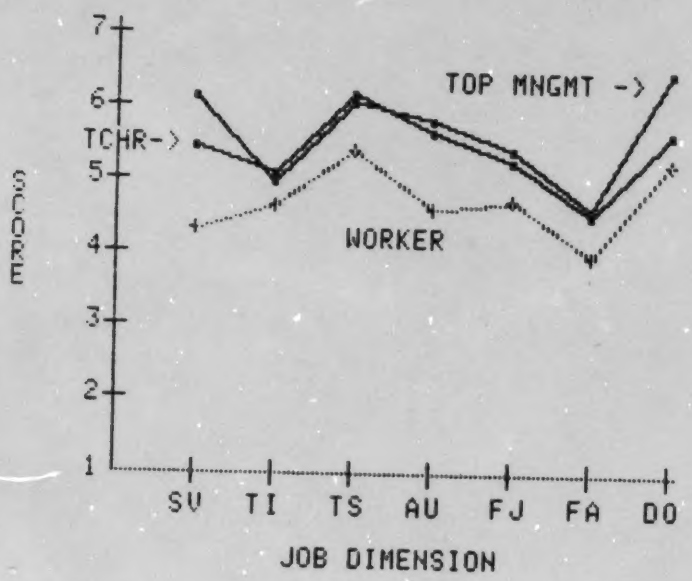


Figure 3. Profiles for teacher self-ratings compared with top management and office or shop workers.

In general, the statistics portend a loss in sensitivity of the core job characteristics measures (and the two supplements) when applied to the teaching occupation, to which we now turn.

Sensitivity of the Revised Measures

Much of the collective effort of the research team was directed toward specifying kinds of teaching job that would display markedly different profiles with regard to core job characteristics. Our general strategy was

to attempt to anticipate the types of teaching job in public schools, as we knew them, that would epitomize the greatest variations on each of the characteristics (we limited ourselves to the five job dimensions relevant to the Hackman-Oldham theory) and then to locate such jobs in schools of Oregon and measure them through incumbent self-reports. Our discussions in the course of instrument revision, as suggested in the preceding section, included such considerations. As our discussions proceeded, we found it extremely difficult to conceive of differences between, say, science, mathematics, social studies, and English teaching in the high school or between the teaching of the specific grade levels in the elementary school--the conventional bases for classifying teaching jobs--on any of the dimensions. We were able to anticipate differences, at least on some of the dimensions, between elementary and secondary teaching or, within the high school, between the teaching of acadmic and certain non-academic subjects. However, the differences we were best able to conceive hinged on the nature of particular teaching assignments rather than on the more gross categories of subject-matter area or departmental affiliation. Eventually, we generated a set of five jobs which we thought to be "maximally different" on one or more of the Hackman-Oldham dimensions. The groups were:

A. Advanced science teachers in the high school. These are "exit-level" courses. The group was limited to teachers of chemistry, physics, and advanced foreign languages--typically elective courses taught be one or very few teachers. The subject matter must have demonstrable skills imbedded in it.

B. Teachers of social studies specifically at the ninth- and tenth-grade levels. Classes are large, student contact brief, and student learning is not readily attributable to the teacher's

own efforts.

C. The industrial arts/shop teacher. A non-academic part of the curriculum and usually in a geographically separate location from the rest of the staff. Tangible products are produced by their students, with whom they work individually and intensively for a sustained period of time.

D. Special education teachers. Particularly those with resource-room responsibilities. They have contact with the same students over the school day and year and have varying instructional responsibilities, usually of a remedial nature. Special education resource room teachers have an overview of the student's entire schedule through the Individualized Education Plan (IEP) which they help draw up for each student. The teacher often meets with the student in a limited access part of the school building.

E. Elementary teachers in self-contained classrooms. Any grade level. The job calls for work with children throughout the school day and year, but teaching a variety of the same subjects, all at a non-specialized level.

On a variety of grounds, intermediate-level social studies teachers were defined as the principal contrast group. That group was expected to be lower in Skill Variety, Task Identity, Task Significance, and Feedback from the Job than any of the other job groupings. Groups A, C, D, and E were expected to be high with regard to both Skill Variety and Task Identity. After extensive discussion, the researchers agreed that no distinction could be drawn between the groups with regard to Autonomy. The research team felt incapable of predicting where Group E, elementary teachers in self-contained classrooms, would fall on Task Significance, nor where that group and Group D would fall with respect to Feedback from the Job. Our predictions are listed in Table 3 below.

Table 3. Predicted Scores on Core Job Characteristics

	High on Dimension	Low on Dimension
Skill Variety	Groups A, C, D, E	Group B
Task Identity	Groups A, C, D, E	Group B
Task Significance	Groups A, C, D	Group B
Feedback from Job	Groups A, C	Group B

Group A: Advanced Science Teacher in High Schools
Group B: Social Studies Teacher in High Schools
Group C: Industrial Arts Teacher in High Schools
Group D: Resource Room Teacher in Elementary Schools
Group E: Regular Classroom Teacher in Elementary Schools

In order to test the predictions, it was necessary to identify reasonably pure instances of these jobs in our pool of respondents. We had obtained from each respondent a detailed description of daily course schedules and other job assignments and used this information to refine selections. This process, too, proved an eye-opener for the research team. It was difficult to find instances which fit neatly the conceived groups, especially among the secondary teachers. For instance, advanced science teachers who only taught advanced science courses were rare; typically they split their time with other teaching responsibilities so that their overall schedule looked a lot like the teachers who taught general social studies courses. After considerable discussion we identified 68 teachers from the pool who fit clearly one or the other of the five groups.

We present first, in Table 4, the inter-rater reliabilities and other statistics necessary for estimating sensitivity, calculated from incumbent

ratings of the five maximally different jobs.

Table 4. Inter-rater Reliabilities of Job Dimensions: Estimated from Teacher Ratings of Five Maximally Different Jobs

Job Dimension	Mean	S.D.	Mean Squares		Variance Component		Inter-Rater Reliab.
			Between	Within	Job	Resid.	
Skill Variety	5.44	.253	.5891	.5847	.00	.58	.01
Task Identity	5.18	.509	2.1844	1.5130	.05	1.51	.31
Task Significance	6.16	.152	.3342	.6425	0	.64	0
Autonomy	5.62	.182	.4456	.9128	0	.91	0
Feedback from Job	5.24	.209	.4769	1.3761	0	1.38	0
Feedback from Agents	4.94	.989	1.9534	1.9941	0	1.99	0
Dealing with Others	5.47	.750	8.2410	1.5107	.49	1.52	.82

Note: Based on 5 jobs, 68 respondents, 13.6 raters per job.

The reliability figures in the table speak for themselves. Teachers within a given job agree no more among themselves, on the average, than they do across all five jobs. The clear exception is the Dealing with Others dimension. The unreliability of the measures could be a function of the similarities of the teaching jobs, despite our concerted effort to find maximally different ones, or it could be a fault of our instrument revision. However, the estimated variance components for "residual," shown in the next-to-last column, negate the latter alternative. The values for rater error are rather consistently lower than the corresponding ones in the original Hackman-Oldham instrument (see Table 1), a fact we would like to attribute to the clarifications we sought to achieve in the revision process.

Since we had made explicit predictions regarding the differences we

expected between specific groups on particular dimensions, it was appropriate to make several direct tests of them. Table 5 presents t tests between means of the groups predicted to be high and low on the dimensions for which predictions were made. We evaluated the t coefficients as one-tailed tests. While the means fell as predicted, none of the differences reached significance at the .05 level.

Table 5. Tests of Predictions for Maximally-different Groups

Groups	N	Mean	S.D.	t	p*
Skill Variety					
High: A C D E	57	5.48	.723	1.4402	.077
Low: B	11	5.12	.934		
Task Identity					
High: A C D E	57	5.19	1.212	1.3487	.091
Low: B	11	4.64	1.378		
Task Significance					
High: A C D	40	6.12	.749	.381	.352
Low: B	11	6.02	.851		
Feedback from Job					
High: A C	23	5.43	1.007	.9628	.171
Low: B	11	5.06	1.133		

*One-tailed probability.

We made several unrewarding efforts at analysis, including analyses of the entire job profiles by means of multi-dimensional scaling techniques,

but the scales were too insensitive to detect anticipated differences. In sum, the evidence is unequivocal that the job dimensions as formulated and measured by Hackman and Oldham in the JDS are not suited to distinguishing jobs within the teaching occupation.

Subjectivity of the Measures

The question of the extent to which incumbent ratings of the job are imbued with their own affect regarding it (i.e., their "psychological response to the job") is commonly phrased as an issue of convergent and discriminant validity (Campbell & Fiske, 1959). If the ratings of a job's Skill Variety, Task Identity, and so on were truly objective, they should agree with the ratings of others equally well acquainted with it--others who do not share the incumbent's personal biases. Do the ratings converge? Is the agreement sufficiently high that incumbent and other ratings could be regarded as interchangeable? One would expect, too, that the agreement would be higher between two raters' descriptions of the same job characteristic than between the incumbent's (or the other's) ratings of the several job dimensions. Are the raters themselves able to discriminate between the job dimensions? As we pointed out in the beginning section, the evidence with respect to the original Hackman-Oldham instrument is scarce and certainly not encouraging, especially with respect to convergence.

Our approach was to ask a number of active school personnel to rate a teaching job which they supervised or with which they were otherwise familiar--a job whose incumbent would be willing to furnish a similar rating. These personnel were either individuals in graduate education courses or

personal contacts of the researchers. They were also asked to solicit the cooperation of the job holder and to assure the questionnaire would be returned. Incumbent and "other" questionnaires requested specific information about the position in question to assure an exact match between the two ratings and to identify jobs that were not in teaching positions in the public schools. The questionnaires were completed independently of one another. Matched ratings were obtained in this way from 72 individuals, covering 36 teaching jobs. The majority of the "others" were the immediate supervisors of the teachers, while a few were colleagues and a small number were supervisors of student teachers.

Correlations were computed in a manner that would permit them being cast in a multitrait-multirater matrix (Campbell and Fiske, 1959). "Trait" refers to the 7 job characteristics and "method" to the 2 raters. Table 6 gives the means and standard deviations for the self and other ratings, while Table 7 displays the matrix.

Table 6. Means for Self and Other Ratings of Same Job

		Self		Other	
		Mean	S.D.	Mean	S.D.
SV	Skill Variety	5.42	.757	5.51	.558
TI	Task Identity	4.88	1.311	4.98	1.110
TS	Task Significance	6.32	.631	6.19	.743
AU	Autonomy	5.42	1.054	5.29	.877
FJ	Feedback from Job	5.26	1.185	5.36	1.091
FA	Feedback from Agents	5.08	1.281	5.06	1.403
DO	Dealing with Others	5.96	1.112	5.52	1.183

The means indicate that others familiar with the teachers' jobs rate them much as the teachers themselves, with the minor exception of the dimension, Dealing with Others. The job incumbents were not systematically biased one direction or the other, considering the 36 jobs together.

The main question, of course, is the extent of rater agreement with regard to the same job. The so-called validity diagonal of the correlation matrix (in bold-face) provides the answer. In short, there was little convergence. The correlations range from a high of .61 (Feedback from Agents) to a low of .12 (Task Significance), with a mean of .32, as given at the bottom of the table. In general, they are substantially below the already unfavorable levels reported in the management literature for the original Hackman-Oldham scales. We suspect that it is due largely to the instrument's insensitivity to differences in teaching jobs, as documented in the preceding section. In terms of the particular dimensions of the Hackman and Oldham formulation, raters see teaching jobs as much alike.

Table 7. Multitrait-Multirater Matrix for Matched Pairs

(N = 36 pairs)

		Self							Other						
		SV	TI	TS	AU	FJ	FA	DO	SV	TI	TS	AU	FJ	FA	DO
	SV														
S	TI	.09													
e	TS	.28	.26												
l	AU	.23	.32	.17											
f	FJ	-.01	.44	.12	0										
	FA	-.09	.07	.08	-.29	.41									
	DO	.06	0	.36	-.01	.15	.56								
	SV	.31	.05	.13	.06	.02	.05	.11							
O	TI	-.20	.19	-.35	-.14	.17	.32	.18	-.02						
t	TS	.03	0	.12	-.28	.16	.48	.32	.21	.19					
h	AU	-.12	.26	0	.48	.11	-.15	-.07	.34	.19	0				
e	FJ	-.18	.11	-.04	-.04	.16	.38	.13	-.01	.56	.26	.22			
r	FA	.03	.02	-.13	-.38	.31	.61	.41	-.04	.47	.50	-.20	.37		
	DO	.25	-.01	.35	.05	.28	.38	.40	.15	-.03	.22	-.14	.14	.28	

AU	Autonomy
DO	Dealing with Others
FA	Feedback from Agents
FJ	Feedback from Job
SV	Skill Variety
TI	Task Identity
TS	Task Significance

	Mean r
Validity Diagonal (bold-face)	.324
Heterotrait-monomethod	.059
Heterotrait-heteromethod	.164

Raters were discriminating in their use of the scales, however. Correlations in the heterotrait-monorater triangles were quite low on average (.16), indicating that there was little carry-over in a rater's scoring of one trait to the scoring of the next. It is not true that a common theme ran through all of an incumbent's (or other's) ratings, as we had feared. The baseline (heterotrait-heteromethod) correlations are appropriately low, hovering near zero, although inspection of the table will indicate they vary widely from -.38 to .61.

We conducted an analysis of the same data following the components of variance approach outlined by Cronbach, Gleser, Nanda, and Rajaratnam (1972). It is similar in principle to the procedure originally suggested by Stanley (1961) and pursued by Kavanagh, MacKinney, and Wolins (1971) for analyzing multitrait-multimethod data, except it starts from observed scores rather than correlations between scores. We show in Table 8 a summary of the two-facet analysis (rater and job dimension as the facets) from the fully crossed study design, with the estimates of the variance components in the last column.

Table 8. Variance Components for Paired Ratings of Teaching Jobs

Source	Frequency	Mean Squares	Est. Component
Job	1	3.15676	.154
Rater	2	.45131	0
Dimension	7	14.06895	.183
Job X Rater	2	1.21370	.083
Job X Dimension	7	1.22116	.295
Rater X Dimension	14	.70575	.002
Residual	14	.63381	.630

Note: Based on 36 jobs, 2 raters, 7 job dimensions, fully crossed design.

The analysis confirms the observations made by inspecting the multitrait-multimethod matrix. The dominating variance components, apart from the residual, are those associated with the job dimensions themselves, as one might hope. It also confirms the absence of a general bias of the two rating groups, either overall of from one dimension to another, both of which facts are reflected in the means of Table 6. As for the principle question, the agreement between ratings of the same job, the Job X Rater component is fairly large, especially in comparison with the component for Job itself; as the validity diagonal has already suggested, raters were in less than firm agreement in their descriptions.

In the end, we do not know for sure how much an incumbent's psychological reactions to the job color his or her descriptions of it. Clearly, it is not the case that general feelings of euphoria or despondency act to raise or lower ratings systematically across the job dimensions.

This, at least, is a good sign insofar as the possibility goes of spurious correlations with a truly affective variable, such as job satisfaction.

Relationships with Organizational Commitment

To get a sense of a possible relationship of the core job characteristics with an outcome variable relevant to a theory of employee motivation, we included a version of the Organizational Commitment Questionnaire (OCQ) in one of our early rounds of data collection. The OCQ is a 15-item, Likert scale developed by Mowday, Steers, and Porter (1979) to measure employee loyalty to the organization for which he or she works. Giduk (1982) had adapted it for his study of Canadian elementary schools.

The following analyses are based on 81 teacher self-ratings of the five core job dimensions. As a matter of interest, we calculated the score proposed by Hackman and Oldham (1980, p.81) to describe the overall "motivating potential" of a job--the MPS. Their formula for combining the five dimension scores a is multiplicative one, the product of Autonomy, Feedback from the Job, and the average score for Skill Variety, Task Identity and Task Significance.

$$MPS = \{(SV + TI + TS) / 3\} \times AU \times FJ$$

Values of MPS potentially range from 1 to 343. The multiplicative feature is based on the belief of Hackman and colleagues that the three "critical psychological states" of the employee, which the job characteristics presumably induce, must <u>all</u> be present in order to realize positive motivational consequences. The formulation has been heavily criticized in the management literature. (See Roberts & Glick, 1981, p. 197.)

Two hierarchical regression analyses of the OCQ scores were conducted. The first considered the core job characteristics individually. Teacher gender and years of teaching experience were entered in the regression first to remove their effects on OCQ, followed by the five separate dimensions. Of special interest was the relative contributions of the dimensions to the prediction of Organizational Commitment, as indicated by the magnitudes and signs of the Beta weights.

The second analysis was similar, except that MPS replaced the separate job dimension scores in the regression. Here the interest was in the explanatory power of MPS in predicting Organizational Commitment in comparison with the power of the dimensions separately. This comparison is indicated by the increments in R Square for the MPS score vs. the block of individual dimensions.

Results of the first analysis, given in the top section of Table 9, indicate that together the job dimensions account for an appreciable proportion of variance in OCQ scores, net of gender and years of experience. The increment of .379 in explained variance is equivalent to a multiple correlation of about .60 (after adjustment). The Beta coefficients reveal that Skill Variety and Task Identity are the two main contributors to the prediction of OCQ, while Task Significance and Feedback from the Job contribute little or nothing. The negative coefficient (-.237) for Autonomy is a surprise. It suggests, for this sample at least, that the greater the teacher's autonomy in work, the <u>lesser</u> will be his or her loyalty to the school, once the other job dimensions are taken into account. (Table 10

gives the intercorrelations on which the regressions were based.)

Table 9. Regressions of Organizational Commitment on Five Job Dimension Scores and MPS

(N = 81)

Dependent: Organizational Commitment Score

Independent	Beta	b	SE	R Square	RSq Change
SEX	.155	.249	.152		
EXP	.083	.008	.009	.033	.033
SV	.396	.412	.105		
TI	.399	.255	.068		
TS	-.043	-.042	.092		
AU	-.237	-.290	.129		
FJ	.123	.092	.088	.412	.379
SEX	.208	.333	.170		
EXP	.039	.004	.010	.033	.033
MPS	.324	.005	.001	.137	.104

SEX	(Code: Male=1, Female=2)	TS	Task Significance
EXP	Years teaching experience	AU	Autonomy
SV	Skill Variety	FJ	Feedback from Job
TI	Task Identity	MPS	Motivating Potential Score

When Hackman and Oldham's MPS summary score replaces the five job dimensions in the regression, the power to explain variance in OCQ drops sharply, as indicated in the lower part of Table 9. It adds only 10.4% to the explanation, beyond the effects of gender and years of teaching

experience. This compares with 37.9% for the five characteristics considered additively.

Table 10. Intercorrelations of Five Job Dimensions, MPS, and Organizational Commitment

(N = 81)

Variable	Mean	S.D.	Correlations							
			SEX	EXP	SV	TI	TS	AU	FJ	MPS
SEX	1.36	.492								
EXP	14.59	8.208	-.02							
SV	5.40	.757	.24	-.02						
TI	5.09	1.226	-.13	-.10	.21					
TS	5.92	.820	.02	.01	.30	.18				
AU	5.70	.643	0	.03	.25	.26	.19			
FJ	5.30	1.050	-.12	-.12	.19	.51	.22	.49		
MPS	169.67	56.537	-.08	-.08	.41	.65	.42	.70	.89	
OCQ	5.56	.787	.18	.01	.47	.45	.13	.02	.25	.30

SEX	(Male=1, Female=2)	AU	Autonomy
EXP	Years teaching experience	FJ	Feedback from Job
SV	Skill Variety	MPS	Motivating potential Score
TI	Task Identity	OCQ	Organizational Commitment
TS	Task Significance		

In light of the coefficients from the first analysis, it is rather easy to see why MPS performed poorly as a summary of the effects of the job dimensions. Its calculation gives Skill Variety and Task Identity (the two main predictors of OCQ) one-third the weight of Autonomy and Feedback from the Job, and the calculation assumes that Autonomy is a positive (not a negative) contributor to a job's "motivating potential." (This is apart from

the issue of curvilinearity implied by the multiplicative score; an overall score contrived as a simple average of the five dimension scores explained 18.5% of the variance in OCQ, indicating that a linear function would give a somewhat better fit.)

The pattern of the weights of the five core job characteristics in the first analysis raises a further question regarding the utility of the Hackman theory of job redesign for teaching. Assuming that Organizational Commitment is a relevant outcome variable, the essentially zero contribution of Task Significance and Feedback from the Job to its prediction indicates that these dimensions are not especially salient for teachers. In the case of Autonomy, an attribute which, if Lortie (1974) can be believed, teaching has in abundance, its negative weighting suggests that, for some teachers at least, it is too abundant. It appears to be salient but in the "wrong" direction. Teaching may be over-enriched with regard to it.

D. CONCLUSIONS

The management of schools proceeds without a substantial theory base of its own. In the main, the theory which does guide practice has been adopted--or forced upon school managers--from other organizational settings, particularly the private sector. It is frequently done without careful reflection on relevance. A primary purpose of this research project has been to examine the utility in the school setting of an emerging body of theoretical work in the redesign of jobs to facilitate desired outcomes of work.

The specific focus of the study has been the work of Hackman and his colleagues (e.g., Hackman & Oldham, 1980). Briefly stated, Hackman asserts that job redesign is a matter of fitting the work to the worker, of providing opportunities for intrinsically satisfying work to those who choose to seize them and to avoid distressing those for whom job enrichment would be unduly taxing.

Five properties of jobs were singled out as being of especial significance for employee motivation. Together they represent the job's motivating potential. These "core job characteristics" are referred to as Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback from the Job. These properties bear on the three "critical psychological states" that Hackman and his colleagues regard as central conditions of strong

internal work motivation and positive work outcomes.

The theory was of particular interest to us as it purportedly provides the manager with substantially independent dimensions of a job, each of which lends itself to managerial manipulation. We were attracted to the theory, but we asked ourselves, does it have any utility in the school setting?

To provide a partial answer to the question we chose to concentrate on the five core job characteristics specified by the theory. We also limited ourselves to examining teaching jobs at the elementary secondary level in American public schools. Three major issues guided our investigation: (1) Are the concepts and measures of job characteristics relevant to teaching? (2) Can the concepts and measures differentiate between teaching jobs? (3) Are job holder reports adequate measures of job characteristics?

To answer questions raised by the first issue, that of relevance, the research team engaged in intensive, word-by-word analysis of the instrument developed by Hackman and his colleagues. It was part of our effort of translating the questionnaire into an educationally suitable form. The examination led us to question seriously the relevance of a number of key concepts to the work of professionals. For example, we had trouble determining the boundaries of the teaching job and in establishing appropriate classifications of discrete jobs within schools. The meaning of "job," itself, was uncertain in an occupation with as little internal differentiation as teaching, and revision of the instrument proved difficult

if we were to remain faithful to the core characteristics proposed by the Hackman theory.

To determine an answer to questions raised by the second issue, that of sensitivity, revised questionnaires were administered to 244 carefully selected Oregon school personnel. If the measures were sensitive to variations within teaching, we speculated that maximally different jobs in schools would surely demonstrate these differences. Five such jobs were selected, three in high schools--advanced science, industrial arts, and social studies--and two in elementary schools--special education resource room teaching and teaching in regular self-contained classrooms. We were surprised to find, through detailed inspections of daily schedules, that few instances of "pure" job categories existed, particularly at the secondary level. After considerable discussion we identified 68 teachers from the pool who fit clearly in one of the five groups. Results of statistical analysis of teacher responses were plain. The job dimensions formulated by Hackman were not suited to distinguishing among jobs in the teaching profession.

The third issue we addressed was that of subjectivity. Stated otherwise, we asked how adequately incumbent reports of their jobs measured the job characteristics. Our approach was to obtain job ratings of the same position from both supervisors and incumbents. Matched ratings were obtained from 72 individuals, covering 36 teaching jobs. We found evidence for reasonable discriminant validity in the ratings of supervisors and teachers, implying that the job descriptions were not importantly saturated with subjective feelings about the job. At the same time, convergent validity was

unacceptably low, indicating once again, we believe, that the measures were generally insensitive to differences among teaching jobs.

We found that the job profiles for teachers were almost identical to those for top managers of business and industrial firms, not those of rank-and-file workers. The theorizing of Hackman and his colleagues has been devised as a means for understanding the motivational bases of work of the latter group, and we have come to the conclusion that the model and its instrumentation has little to offer school managers as they attempt to reformulate the teaching job.

APPENDIX A. JOB DIAGNOSTIC SURVEY

JOB DIAGNOSTIC SURVEY

This questionnaire was developed as part of a Yale University study of jobs and how people react to them. The questionnaire helps to determine how jobs can be better designed, by obtaining information about how people react to different kinds of jobs.

On the following pages you will find several different kinds of questions about your job. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 25 minutes to complete the entire questionnaire. Please move through it quickly.

The questions are designed to obtain <u>your</u> perceptions of your job and <u>your</u> reactions to it.

There are no trick questions. Your individual answers will be kept completely confidential. Please answer each item as honestly and frankly as possible.

Thank you for your cooperation.

SECTION ONE

This part of the questionnaire asks you to describe your job as <u>objectively</u> as you can.

Please do <u>not</u> use this part of the questionnaire to show how much you like or dislike your job. Questions about that will come later. Instead, try to make your descriptions as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does your job require you to work with mechanical equipment?

1--------2--------3--------4--------5--------6-------7

Very little; the job requires almost no contact with mechanical equipment of any kind.	Moderately	Very much; the job requires almost constant work with mechanical equipment.

You are to <u>circle</u> the number which is the most accurate description of your job.

If, for example, your job requires you to work with mechanical equipment a good deal of the time - but also requires some paperwork - you might circle the number six, as was done in the example above.

If you do not understand these instructions, please ask for assistance. If you do understand them, turn the page and begin.

1. To what extent does your job require you to work closely with other people (either "clients," or people in related jobs in your own organization)?

1--------2--------3--------4--------5--------6--------7

Very little; dealing with other people is not at all necessary in doing the job.

Moderately; some dealing with others is necessary.

Very much; dealing with other people is an absolutely crucial part of doing the job.

2. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

1--------2--------3--------4--------5--------6--------7

Very little; the job gives me almost no personal "say" about how and when the work is done.

Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.

Very much; the job gives me almost complete responsibility for deciding how and when the work is done.

3. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people of automatic machines?

1--------2--------3--------4--------5--------6--------7

My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service.

My job is a moderate-sized "chunk" of the overall piece of work; my own contributions can be seen in the final outcome.

My job involves doing the whole piece of work; from start to finish; the results of my activities are easily seen in the final product or service.

4. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1--------2--------3--------4--------5--------6--------7

Very little; the job requires me to do the same routine things over and over again.

Moderate variety.

Very much; the job requires me to do many different things, using a number of different skills and talents.

5. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

1--------2--------3--------4--------5--------6--------7

Not very significant; the outcomes of my work are not likely to have important effects on other people.

Moderately significant.

Highly significant; the outcomes of my work can affect other people in very important ways.

6. To what extent do managers or co-workers let you know how well you are doing on your job?

1--------2--------3--------4--------5--------6--------7

Very little; people almost never let me know how well I am doing.

Moderately; sometimes people may give me "feedback"; other times they may not.

Very much; managers or co-workers provide me with almost constant "feedback" about how well I am doing.

7. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing--aside from any "feedback" co-workers or supervisors may provide?

1--------2--------3--------4--------5--------6--------7

Very little; the job itself is set up so I could work forever without finding out how well I am doing.

Moderately; sometimes doing the job provides "feedback" to me; sometimes it does not.

Very much; the job is set up so that I get almost constant "feedback" as I work about how well I am doing.

SECTION TWO

Listed below are a number of statements which could be used to describe a job.

You are to indicate whether each statement is an accurate or an inaccurate description of your job.

Once again, please try to be as objective as you can in deciding how accurately each statement describes your job--regardless of whether you like or dislike your job.

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing your job?

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____1. The job requires me to use a number of complex or high-level skills.

_____2. The job requires a lot of cooperative work with other people.

_____3. The job is arranged so that I do not have a chance to do an entire piece of work from beginning to end.

_____4. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

_____5. The job is quite simple and repetitive.

_____6. The job can be done adequately by a person working alone--without talking or checking with other people.

_____7. The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing in my work.

_____8. This job is one where a lot of other people can be affected by how well the work gets done.

_____9. The job denies me any chance to use my personal initiative or judgment in carrying out the work.

____10. Supervisors often let me know how well they think I am performing the job.

____11. The job provides me the chance to completely finish the pieces of work I begin.

____12. The job itself provides very few clues about whether or not I am performing well.

____13. The job gives me considerable opportunity for independence and freedom in how I do the work.

____14. The job itself is <u>not</u> very significant or important in the broader scheme of things.

APPENDIX B. JOB RATING FORM

JOB RATING FORM

This questionnaire was developed as part of a Yale University study of jobs and how people react to them. The questionnaire helps to determine how jobs can be better designed, by obtaining information about how people react to different kinds of jobs.

You are asked to rate the characteristics of the following job:

_____

Please keep in mind that the questions refer to the job listed above, and not to your own job.

On the following pages, you will find several different kinds of questions about the job listed above. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 10 minutes to complete the entire questionnaire. Please move through it quickly.

SECTION ONE

This part of the questionnaire asks you to describe the job listed as objectively as you can. Try to make your description as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does the job require a person to work with mechanical equipment?

1--------2--------3--------4--------5--------6--------7

Very little; the job requires almost no contack with mechanical equipment of any kind.

Moderately

Very much; the job requires almost constant work with mechanical equipment.

You are to circle the number which is the most accurate description of the job you are rating.

If, for example, the job requires a person to work with mechanical equipment a good deal of the time--but also requires some paperwork--you might circle the number six, as was done in the example above.

* * * *

1. To what extent does the job require a person to work closely with other people (either "clients," or people in related jobs in the organization)?

1--------2--------3--------4--------5--------6--------7

Very little; dealing with other people is not at all necessary in doing the job.

Moderately; some dealing with others is necessary.

Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

2. How much autonomy is there in the job? That is, to what extent does the job permit a person to decide on his or her own how to go about doing the work?

1--------2--------3--------4--------5--------6--------7

Very little; the job gives a person almost no personal "say" about how and when the work is done.

Moderate autonomy; many things are standardized and not under the control of the person, but he or she can make some decisions about the work.

Very much; the job gives the person almost complete responsibility for deciding how and when the work is done.

3. To what extent does the job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines.

1--------2--------3--------4--------5--------6--------7

The job is only a tiny part of the overall piece of work; the results of the person's activities cannot be seen in the final product or service.

The job is a moderate-sized "chunk" of the overall piece of work; the person's own contribution can be seen in the final outcome.

The job involves doing the whole piece of work, from start to finish; the results of the person's activities are easily seen in the final product or service.

4. How much variety is there in the job? That is, to what extent does the job require a person to do many different things at work, using a variety of skills and talents?

1--------2--------3--------4--------5--------6--------7

Very little; the job requires the person to do the same routine things over and over again.

Moderate variety.

Very much; the job requires the person to do many different things, using a number of different skills and talents.

5. In general, how significant or important is the job? That is, are the results of the person's work likely to significantly affect the lives or well-being of other people?

1--------2--------3--------4--------5--------6--------7

Not at all significant; the outcomes of the work are not likely to affect anyone in any important way.

Moderately significant.

Highly significant; the outcomes of the work can affect other people in very important ways.

6. To what extent do managers or co-workers let the person know how well he or she is doing on the job?

1--------2--------3--------4--------5--------6--------7

Very little; people almost never let the person know how well he or she is doing.

Moderately; sometimes people may give the person "feedback"; other times they may not.

Very much; managers or co-workers provide the person with almost constant "feedback" about how well he or she is doing.

7. To what extent does doing the job itself provide the person with information about his or her work performance? That is, does the actual work itself provide clues about how well the person is doing--aside from any "feedback" co-workers or supervisors may provide?

1--------2--------3--------4--------5--------6--------7

Very little; the job itself is set up so a person could work forever without finding out how well he or she is doing.

Moderately; sometimes doing the job provides "feedback" to the person; sometimes it does not.

Very much, the job is set up so that a person gets almost constant "feedback" as he or she works about how well he or she is doing.

SECTION TWO

Listed below are a number of statements which could be used to describe a job.

You are to indicate whether each statement is an accurate or an inaccurate description of the job you are rating.

Once again, please try to be as objective as you can in deciding how accurately each statement describes the job--regardless of your own feelings about that job.

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing the job you are rating?

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____1. The job requires a person to use a number of complex or sophisticated skills.

_____2. The job requires a lot of cooperative work with other people.

_____3. The job is arranged so that a person does not have the chance to do an entire piece of work from beginning to end.

_____4. Just doing the work required by the job provides many chances for a person to figure out how well he or she is doing.

_____5. The job is quite simple and repetitive.

_____6. The job can be done adequately by a person working alone--without talking or checking with other people.

_____7. The supervisors and co-workers on this job almost never give a person any "feedback" about how well he or she is doing the work.

_____8. This job is one where a lot of other people can be affected by how well the work gets done.

_____9. The job denies a person any chance to use his or her personal initiative or discretion in carrying out the work.

____10. Supervisors often let the person know how well they think he or she is performing the job.

____11. The job provides a person with the chance to finish completely any work he or she starts.

____12. The job itself provides very few clues about whether or not the person is performing well.

____13. The job gives a person considerable opportunity for independence and freedom in how he or she does the work.

____14. The job itself is <u>not</u> very significant or important in the broader scheme of things.

APPENDIX C. BOGEN - CHARTERS INVENTORY

BOGEN-CHARTERS INVENTORY: THE TEACHING JOB

This questionnaire has been developed as part of a University of Oregon research project funded through the National Institute of Education. Our work is an extension of earlier work developed in a Yale University study on the design of work in business and industrial settings.

The instrument consists of four parts: (1) general information, (2) items which address the objective characteristics of your job, (3) items which address your feelings about the organization/school for which you work, and (4) items which address your feelings about your work in this school. Separate directions are presented for Parts II, III, and IV.

This is an experimental form. Data collected will be used for research analysis only. Data collected will not be used for any form of individual evaluation. Your individual answers will be kept confidential. If at all, your school will be referred to in coded form only.

We sincerely appreciate your time and contribution to this pioneering effort.

PART I: INFORMATION SHEET

1. Title of your job _____

2. Check the description which most closely applies:

   ____full time teacher at this school

   ____full time teacher working at more than one school

   ____part-time teacher at this school only

   ____part-time teacher working at more than one school

   ____non-instructional staff

   ____substitute teacher

   ____student teacher

   ____teaching intern

   ____other. Specify:_____

3. How long have you been teaching? ____years ____months

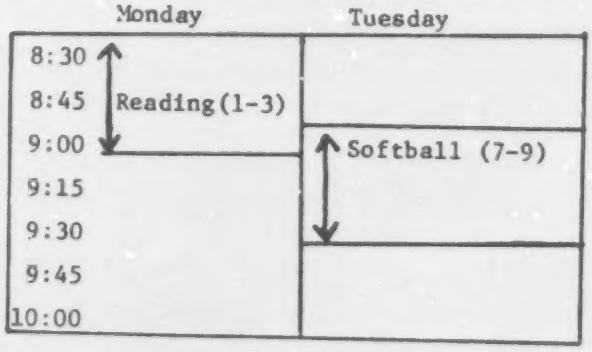
4. How long have you been teaching at this school? ____years ____months

5. Highest degree earned? _____ What field?_____

6. Age? ____years old

7. Gender? ____Male ____Female

8. On the next page, please quickly outline your typical weekly schedule at your school(s). Include a one or two word description of the job or subject area taught, followed by the grade levels taught for that subject (i.e., Reading (1-3), Softball (7-9), etc.) The following diagram is an example:



and so forth

9. Telephone Number: _____

WEEKLY SCHEDULE

	Monday	Tuesday	Wednesday	Thursday	Friday
Before School					
8:15					
8:30					
8:45					
9:00					
9:15					
9:30					
9:45					
10:00					
10:15					
10:30					
10:45					
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1:15					
1:30					
1:45					
2:00					
2:15					
2:30					
2:45					
3:00					
3:15					
3:30					
After School					

PART II: JOB DIAGNOSTIC SURVEY

Please answer each question as honestly and frankly as possible, focusing on the objective characteristics of your job rather than on how you feel about your job. Respond to the items from the viewpoint of your job at this school on a typical day.

Section A Directions: You are to circle the number which is the most accurate description of your job.

1. To what extent does the job require a person to work closely with other people (excluding students)?

1---------2---------3---------4---------5---------6---------7

Very little; dealing with other people is not at all necessary in doing the job.	Moderately; some dealing with others is necessary.	Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

2. How much autonomy is there in the job? That is, to what extent does the job permit a person to decide on his or her own how to go about doing the work?

1---------2---------3---------4---------5---------6---------7

Very little; the job gives a person almost no personal "say" about how or when the work is done.	Moderate autonomy; many things are standardized and not under the control of the person, but he or she can make some decisions about the work.	Very much; the job gives the person almost complete responsibility for deciding how and when the work is done.

3. To what extent does the job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work?

1---------2---------3---------4---------5---------6---------7

The job is only a tiny part of the overall piece of work; the results of the person's activities cannot be seen in the final product or service.	The job is a moderate-sized "chunk" of the overall piece of work; the person's own contribution can be seen in the final outcome.	The job involves doing the whole piece of work from start to finish; the results of the person's activities are easily seen in the final product or service.

4. To what extent does this job allow use of a variety of skills and talents?

1---------2---------3---------4---------5---------6---------7

Very little; the job allows a person to use very few skills and talents.	Moderately; the job allows a person to use a moderate number of skills and talents.	Very much; the job allows a person to use many different skills and talents.

5. How likely is it that the lives or well-being of students would be affected if this job were done poorly?

1---------2---------3---------4---------5---------6---------7

Not very likely; the lives or well-being of students would not be significantly affected if this job were done poorly.	Moderately likely; the lives or well-being of students would be somewhat affected if this job were done poorly.	Highly likely; the lives or well-being of students would be significantly affected if this job were done poorly.

6. To what extent are other people in the work setting (administrators, supervisors, co-workers, parents) able to let one know how well he or she is doing on the job?

1---------2---------3---------4---------5---------6---------7

Very little, people almost never let the person know how well he or she is doing.	Moderately; sometimes people are able to give the person "feedback"; other times they are not.	Very much; other people are able to provide the person with almost constant "feedback" about how well he or she is doing.

7. To what extent does doing the job itself provide one with indications of his or her own work performance? That is, does the actual work itself provide clues about how well the person is doing--aside from any "feedback " one's co-workers or supervisors may provide?

1---------2---------3---------4---------5---------6---------7

Very little; the job itself is such that a person could work forever without finding out how well he or she is doing.

Moderately; sometimes doing the job provides "feedback" to the person; sometimes it does not.

Very much; the job is such that a person gets almost constant "feedback" about how well he or she is doing.

Section B Directions: Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing your job?

1 Very Inaccurate	2 Mostly Inaccurate	3 Slightly Inaccurate	4 Uncertain	5 Slightly Accurate	6 Mostly Accurate	7 Very Accurate

_____ 1. The job requires a person to use a number of complex or sophisticated skills.

_____ 2. The job denies a person any chance to use his or her personal initiative or discretion in carrying out the work.

_____ 3. The job provides a person with the chance to finish the work he or she starts.

_____ 4. The impact on students would be minimal if this job were eliminated altogether.

_____ 5. The job is quite simple and can be done adequately using basic skills.

_____ 6. The job gives a person considerable opportunity for independence and freedom in how he or she does the work.

_____ 7. Just doing the work required by the job provides one with many chances to figure out how well he or she is doing.

_____ 8. Supervisors and co-workers on the job have little real basis for judging on a day-to-day basis how well a person is doing the work for which he or she is responsible.

_____ 9. The job requires a lot of cooperative work with other people.

_____ 10. Activities associated with the job are repetitious.

_____ 11. The person is left pretty much on his or her own to do the work.

_____ 12. The job is such that a person completes only a small part of the overall work.

_____ 13. The job provides little opportunity for independent thought and action.

_____ 14. The job provides one with opportunities to do a number of different things.

_____ 15. This job is one in which people are significantly affected by how well the work gets done.

_____ 16. The work itself provides very little immediate evidence for assessing one's performance.

_____ 17. The individual is free to carry out the work as he or she sees fit.

_____ 18. The job can be done adequately by a person working alone - without talking or checking with other people.

_____ 19. The person doing the job performs much the same task throughout the typical workday.

_____ 20. Other people, such as supervisors and co-workers, are in a position to let the person know how well he or she is performing on the job.

_____ 21. No one would be worse off if this job were not done at all.

_____ 22. The person in the position has limited control over the pace of work.

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